

4.0 CUMULATIVE IMPACTS, SHORT-TERM USE OF THE ENVIRONMENT VS. LONG-TERM PRODUCTIVITY, IRREVERSIBLE / IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA requires evaluation of a proposed action's potential to contribute to "cumulative" environmental impacts. A cumulative impact is defined as:

The impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts can result from similar projects or actions, as well as from projects or actions that have similar impacts (40 CFR 1508.7).

In this case, such similar projects would include other major linear projects that create ground disturbance and visual impacts (e.g., transmission lines over 60 kV; long-distance, buried or aerial fiber-optic cables; mining operations; major roads or railroads; and designated utility corridors allowing future utility projects).

The objective of the following analysis is to evaluate the significance of the proposed action's contribution to cumulative environmental impacts. The cumulative impact analysis is accomplished in three steps:

- Step 1: Identify the cumulative impacts study area for each resource evaluated;
- Step 2: Identify and describe past, present, and reasonably foreseeable future actions in the cumulative impact study area that are similar to the proposed action or have substantial impacts to which the proposed action would contribute; and
- Step 3: Evaluate the potential for the proposed action to have a substantial contribution to cumulative environmental impacts with the potential to significantly affect the environment, based on the significance criteria identified in Chapter 3.

4.1 CUMULATIVE IMPACTS STUDY AREA AND TIMEFRAME

The cumulative impacts study area (CISA) considers two areas:

- A 3-mile-wide utility corridor centered along the Falcon to Gonder transmission line route and the immediately adjacent area; and
- As appropriate, the wider four-county project area, including all of Eureka County and the relevant portions of Lander, Elko, and White Pine counties. This area is similar to that presented in [Figure ES-1](#), excluding areas east of Carlin and north of the White Pine/Elko County line.

The CISA necessarily varies in size and shape according to the characteristics of the resource topic being analyzed. The CISA for soils, vegetation resources, wildlife and wildlife habitat, fire, reclamation, and noxious weeds covers a 3-mile wide corridor along the route alternatives. The CISAs for the remaining resource topics considered in this EIS are identified below:

Geology and Minerals:	Designated mining districts within 10 miles of the route alternatives.
Water Resources:	All affected watersheds (surface water resources), aquifers (groundwater resources) in the immediate vicinity of the substations and maintenance yards, and downstream areas.
Air Quality:	The project area, as well as the air basins within which the proposed construction activities occur.
Special Status Species: (Animal and Plant)	Same as the project study corridor.
Range Resources (Livestock and Wild Horses):	All affected allotments and Herd Management Areas (HMAs) crossed by the project route alternatives.
Land Use and Access:	The predominantly public lands crossed by the project route alternatives.
Recreation/Wilderness:	All of Eureka and White Pine counties, the northern portion of Lander County including the towns of Battle Mountain and Austin, and the southwestern portions of Elko County.
Visual Resources:	3-mile wide corridor viewshed as seen from the 29 Key Observation Points along the project route alternatives.
Social & Economic Values:	All of Eureka, White Pine, Lander, and Elko counties.
Cultural Resources:	The viewshed for Traditional Cultural Properties (TCPs) and sites eligible for National Historic Preservation Act listing under Criteria a, b, and c; the 500-foot wide corridor, plus a 100-foot buffer to each side, for TCPs and sites eligible under Criterion d; and 100 feet to each side of the centerline for access roads.
Public Health and Safety: (Hazardous Materials, Fire and EMF)	1.5 miles on each side of the centerline, and all residential areas, including, but not limited to ranches, the town of Ely, the town of Eureka, and the town of Crescent Valley. The CISA for EMF, specifically, includes 500 feet to either side of the project transmission line. Where the project would parallel existing transmission lines, the area of cumulative impact would be increased by an additional 500 feet.
Environmental Justice:	Any identified minority or low-income populations likely to be affected by the construction, operation, and maintenance of the transmission line.
Native American Concerns:	The width of the proposed utility corridor (if designated in the BLM Resource Management Plan amendments), which would be 3 miles wide.
Noise:	Same as the project study area.

The timeframe for the cumulative impact analysis begins at the time of project construction in 2002 and extends to the year 2033 (i.e., the length of the BLM right-of-way grant). It includes existing conditions of the landscape, specifically, alterations from past developments and uses of the land.

4.2 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

Information about the overall ground disturbance from past, present, and reasonably foreseeable future actions in the project area was gathered from the BLM and other agencies, field surveys, adopted plans, maps, environmental documents, and personal communications with utility companies. The relevant past, present, and reasonably foreseeable future projects listed below are those that were known or projected as of February 2001. Changes in projects after this time are not considered in this analysis. The estimated amounts of cumulative ground disturbance associated with those actions are described below and summarized in Table 4-1.

TABLE 4-1 ESTIMATED CUMULATIVE GROUND DISTURBANCE

	Total Length (miles)	Estimated Construction Disturbance Width (feet)	Total Disturbance Area (acres)	% of Total Disturbance
PAST ACTIONS				
Transmission Lines/Fiber Optic Lines				
345 kV TL (Valmy to Falcon) – SPPC	49.7	30	181	0.5%
230 kV TL (heads east to Gonder) - SPPC	116.8	30	425	1.3%
120 kV TL (surrounding Falcon) – SPPC	60.2	20	146	0.4%
120 kV TL (Falcon to Cortez) – SPPC	72.4	20	175	0.5%
69 kV TL (Falcon - Cortez) – MWP	14.9	15	27	0.1%
69 kV TL (Cortez Mine - Tonkin Spring) – SPPC	27.0	15	49	0.1%
69 kV TL (Machacek - Buck Mountain) – MWP	69.4	15	126	0.4%
69 kV TL (Gonder - north along I-93) – MWP	51.1	15	93	0.3%
60 kV TL (Falcon - north) - SPPC	22.4	15	41	0.1%
Fiber optic line east-west along I-80 ROW - WC	49.1	30	179	0.5%
Mining Operations				
Cortez Mining District	n/a	n/a	8,800	26.2%
Bald Mountain / Buck Mountain mining area	n/a	n/a	2,400	7.1%
Eureka Mining District	n/a	n/a	800	2.4%
Airports				
Eureka County Airport	n/a	n/a	800	2.4%
White Pine County Airport (Yelland Field – Ely)	n/a	n/a	3,450	10.3%
Roads/Railroads				
I-80	49.1	300	1,786	5.3%
Hwy 50	129.0	120	1,876	5.6%
Hwy 93	65.2	120	949	2.8%

TABLE 4-1 ESTIMATED CUMULATIVE GROUND DISTURBANCE (CONT.)

	Total Length (miles)	Estimated Construction Disturbance Width (feet)	Total Disturbance Area (acres)	% of Total Disturbance
Hwy 306	33.1	60	240	0.7%
Hwy 278	88.2	60	642	1.9%
Hwy 892	38.3	60	278	0.8%
Union Pacific Railroad -- I-80 corridor (2 lines)	107.6	40	522	1.6%
Nevada Northern Railroad in Ely area (1 line)	84.2	40	408	1.2%
PRESENT ACTIONS				
Fiber Optic Line - within Hwy 50 ROW – SPC (aka Silver State East Project)	129.0	30	469	1.4%
Fiber Optic Line (Newark Valley - Ely) - NB	75.2	30	273	0.8%
Fiber Optic Line (Ely - Cherry Creek) - NB	67.0	30	244	0.7%
Fiber Optic Line (Cold Creek - Fish Springs Valley) - NB	40.0	30	145	0.4%
Cortez South Pipeline Project	n/a	n/a	4,450	13.2%
Cortez Joint Venture Horse Canyon Exploration Project	n/a	n/a	50	0.1%
FUTURE ACTIONS				
SWIP Corridor (Parallel to US 93) - IPC	65.3	40	317	0.9%
Utility Corridor (2-3 additional TLs along Preferred Alt. Route,) – SPPC, other companies *	179.1	75	1,628	4.8%
Yucca Mtn Branch Rail Line Project (Beowawe to Yucca Mtn.) – DOE (portion within CISA only)	82.2	50	498	1.5%
White Pine County Airport ILS (runway extension project) – White Pine County / FAA	n/a	n/a	700	2.1%
Cortez Joint Venture Pediment Mine Project	n/a	n/a	454	1.4%
TOTAL DISTURBANCE (acres)			33,620	100.0%
Preferred Alternative - Pine Valley (a) transmission line route (temporary construction disturbance area)		n/a	2,172	6.4%
Preferred Alternative - Pine Valley (a) transmission line route (long-term disturbance area)	179.1	n/a	270	0.8%

Source: ED&W, Inc. using GIS analysis. MWP – Mt. Wheeler Power Co., NB – Nevada Bell, WC – Williams Communication, IPC – Idaho Power Company, DOE – Department of Energy

* Does not including proposed TL for purposes of comparison. Total build-out of the corridor would be 3-4 TLs.

As shown in Table 4-1, the amount of cumulative disturbed area in the project area from past, present, and future actions having similar impacts to the Falcon to Gonder project is estimated to be 33,620 acres. This figure does not distinguish type and degree of disturbance nor amount of vegetative recovery from past projects. However, it provides a gross depiction of the relative amount of aerial disturbance to which the project would contribute cumulatively. By comparison, after construction and revegetation, the Falcon to Gonder transmission line would contribute approximately 270 acres of disturbance or less than 1% of the total amount of cumulative disturbed area when considering the entire corridor.

4.2.1 PAST ACTIONS

Relevant past actions in the project area include transmission and fiber optic lines, mining operations, as well as major roads and railroads, are described below.

TRANSMISSION/FIBER OPTIC LINES

- 345 kV transmission line (SPPC) heading east-west to the Falcon substation (Valmy to Falcon).
- 120 kV transmission line (SPPC) heading east-west from the Falcon substation .
- 60 kV transmission line (SPPC) heading north from the Falcon substation.
- 120 kV, 69 & 25 kV (SPPC) transmission lines from Falcon substation heading south to Cortez Mine.
- 69 kV transmission line (SPPC) from Cortez Mine south to Tonkin Spring.
- 230 kV transmission line (SPPC) east-west roughly paralleling US Highway 50 to the Gonder substation.
- 69 kV transmission line (Mt. Wheeler Power Company) from Mackcheck substation east and then north toward Buck Mountain.
- 69 kV transmission line (Mt. Wheeler Power Company) from Gonder substation north along I-93.
- Fiber optic line (Williams Communication) east-west along I-80 right-of-way.

MINING

- 14 existing mines within the Cortez Mining District, which have disturbed approximately 7,000 acres. Other related exploration activities have disturbed another 1,800 acres (South Pipeline Project FEIS, 2000).
- 8 mines within the Bald Mountain / Buck Mountain mining area have caused approximately 2,400 acres of disturbance in 1995 (Bald Mountain Mine Expansion Project FEIS, 1995).
- Mining in the Eureka area, including the Homestake Mine and the Ruby Hill project involved approximately 800 acres of disturbance (Ruby Hill Project FEIS, 1997).
- Other mining-related disturbances, including numerous historic operations, are widely spread throughout the project area and cannot be accurately quantified in terms of acres of disturbance.

AIRPORTS

- Eureka Municipal Airport with a runway of 7300 feet in length (USDOT – FAA, 1999).
- White Pine County Airport (Yelland Field, Ely) with two runways, 6000 and 4800 feet in length (USDOT – FAA, 1997).

ROADS/RAILROADS

- Interstate 80 heading east-west through the northern portion of the project area.
- US Highway 50 heading east west through the southern portion of the project area.

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- State Highway 278 heading north-south, connecting Carlin with Eureka in the approximate center of the project area.
 - State Highway 892 heading north-south, connecting Elko with Eureka in the approximate center of the project area.
 - State Highway 306 heading north-south, connecting Beowawe with Interstate 80, on the western portion of the project area.
 - US Highway 93 heading north-south on the far eastern portion of the project area, and adjacent to the Gonder substation
 - Union Pacific Railroad heading east-west, roughly paralleling Interstate 80 in the northern portion of the project area.
 - Nevada Northern Railroad heading north-south roughly paralleling US Highway 93 to the east of the Gonder substation.

4.2.2 PRESENT ACTIONS

Present actions include projects for which applications have been submitted to the BLM and other agencies and that are in various stages of the approval/permitting process.

Project Name: Sierra Pacific Communications Fiber Optic Project - Reno, Nevada to Salt Lake City, Utah (also known as the Silver State East Project).

Project Description: The proposed fiber optic project consists of construction, operation, and maintenance of a buried cable between Reno, Nevada and Salt Lake City, Utah, along the US Highway 50 right-of-way in the project area. The route would connect two existing metro loops – the Verdi to Reno loop on the west end and Salt Lake City to Brigham City, Utah on the east end.

Location: Reno, Nevada, to Salt Lake City, Utah.

Status: Application submitted to BLM on March 30, 2000. Will be constructed in 2001 if approved.

Project Name: Sierra Pacific Fiber Optic Communication Project – Silver State South.

Project Description: The proposed fiber optic project parallels existing U.S. and State highways to connect the Carson City and Las Vegas areas.

Location: Carson City, Nevada, to Las Vegas, Nevada.

Status: Application submitted to BLM on March 7, 2001.

Project Name: Nevada Bell Fiber Optic Project - Newark Valley to Cherry Creek, Nevada.

Project Description: Installation of a fiber optic cable to improve and upgrade the existing telecommunication services within the eastern region of Nevada. The cable would replace obsolete telecommunication equipment to provide for future growth and improve services in the area. From Newark Valley to the Mormon Ranch in Jakes Valley, the cable would be constructed underground adjacent to and within existing roadways or two-track roads. From the Mormon Ranch, across the Egan Range, to the pole line road located just outside of Ely, Nevada, the cable would attach aerially on existing power poles owned by Mt. Wheeler Power Company. From the pole line road, located in Section 28, Township 17 North, Range 63 East, the cable would be placed underground and adjacent to existing county or state roadways until it terminates at Nevada Bell's existing radio site in Ely. Length of the total project is approximately 75.2 miles.

Location: Newark Valley, Long Valley, Jake's Valley and Steptoe Valley in White Pine County.

Status: Project approved, grant issued April 27, 2000.

Project Name: Nevada Bell Fiber Optic Project – Ely to Cherry Creek.

Project Description: Construction of a 67 mile-long underground fiber optic communication line.

Location: White Pine County.

Status: Grant issued July 25, 2000.

Project Name: Nevada Bell Fiber Optic Project – Cold Creek to Fish Springs Valley.

Project Description: Construction of a 40 mile-long underground fiber optic communication line.

Location: White Pine County.

Status: Grant issued February 12, 2001.

Project Name: Nevada Bell Fiber Optic Project – Ely to Sunnyside.

Project Description: Construction of an 80 mile-long fiber optic communication line aboveground along an existing telephone line. This has not been included in Table 4-1 as it would create little in the way of ground disturbance.

Location: White Pine County.

Status: Grant issued February 12, 2001.

Project Name: Cortez South Pipeline Project (BLM 1999a).

Project Description: Expansion of the Pipeline open pit gold mine milling and heap leaching operation, expansion of the rock dump and tailings facility, use of a water pipeline to deliver irrigation water to the Dean Ranch, and extension of process solution pipelines from South Pipeline leach facility to other process facilities within the project area. Surface disturbance of 4,450 acres of public land.

Location: Lander County, Crescent Valley.

Status: FEIS Record of Decision (ROD) and Plan of Operations Approval released in June 2000.

Project Name: Cortez Joint Venture Horse Canyon Exploration Project (BLM 1999b).

Project Description: Cortez Joint Venture minerals exploration project that is expected to disturb approximately 50 acres of BLM lands in the Pipeline/South Pipeline Cortez Mine Site (near Highway 306). The site extends into the BLM's Battle Mountain and Elko Field Offices.

Location: Crescent Valley in Lander and Eureka counties.

Status: Environmental Assessment released October 1999.

4.2.3 REASONABLY FORESEEABLE FUTURE ACTIONS

The following projects are those that have been approved and/or are currently being discussed in the public realm and have a reasonable likelihood of being implemented. These include an approved Idaho Power Company transmission line project and its related utility corridor, the potential Yucca Mountain rail project being proposed for transportation of nuclear waste, and other mining, airport expansion, and infrastructure projects. These projects are summarized below

UTILITY LINES

Project Name: Southwest Intertie Project (SWIP) and RMP Utility Corridor Amendment.

Project Description: Proposal by the Idaho Power Company (IPC) to construct, operate, and maintain a 319-mile long 500 kV transmission line through Nevada, Utah, and Idaho. Related BLM Resource Management Plan amendments designating a new utility corridor and right-of-way approvals have already been completed.

Location: Nevada, Utah, and Idaho. Midpoint Station near Shoshone, Idaho to northeast Las Vegas, Nevada (Midpoint to Dry Lake segment), and between a proposed substation in the Ely, Nevada area and a proposed substation Delta, Utah (Ely to Delta Segment). In the project area, one portion of the SWIP utility corridor runs north-south, intersecting the utility corridor also containing SPPC's 230 kV line near US Highway 50 west of Ely, and then running east-west to the Gonder Substation.

Status: The SWIP ROD granted the right-of-way to IPC for a 500 kV transmission line. The current status of this project is unknown, however, as discussions with IPC reveal that their construction of this line as granted is uncertain (personal communication with John Berdrow, SPPC, 2000). A 3 mile-wide utility corridor has been approved by the BLM, and the ROW grant was extended in December 1999.

Project Name: Coastal Corporation Power Plant and Natural Gas Pipeline, Elko, Nevada.

Project Description: Proposal by Coastal Corporation to construct a power plant and natural gas pipeline to serve future industrial growth in northeast Nevada, and potentially, energy demand in the western United States. This project has not been included in the estimated acres of disturbance (Table 4-1) as it is too speculative and has no specific location at this time.

Location: The pipeline would extend from Utah to Carlin and/or Elko, Nevada.

Status: No formal application has been submitted to the BLM. However, this project has been discussed in local newspapers as a potential energy project.

Project Name: Nevada Bell Fiber-Optic Projects

Project Description: Nevada Bell is exploring two potential fiber-optic projects in north-central Nevada.

Location: One fiber-optic project would be in Crescent Valley and one in Diamond Valley, Nevada. The projects are in a preliminary planning stage and exact locations are not yet determined.

Status: No formal applications have been submitted to the BLM. However, Nevada Bell has held pre-application meetings with BLM to discuss these two potential fiber-optic projects.

POWER PLANT

Project Name: Coal Fired Power Plant in White County.

Project Description: White Pine County is currently working with major power generation firms interested in the possibility of siting a coal fired power plant in their area (according to a White Pine County Board of Commissioners letter signed by Cheryl Noriega, Chairman, and dated August 20, 2001).

Status: No firm plans, potential locations or formal applications have been provided to BLM. The project is in the early planning and exploratory stages.

MINING

Project Name: Cortez Joint Venture Pediment Mine Project

Project Description: Proposal for Cortez Joint Venture open pit mining operation that is expected to disturb approximately 1,766 acres of BLM lands in the Pediment Mine Site off County Road 225 near Cortez canyon. The site is within the jurisdiction of the BLM's Battle Mountain Field Office. Potential conflicts with the Crescent Valley route alternatives are yet to be determined.

Location: Crescent Valley in Eureka County.

Status: The plan of operations was submitted to the BLM on 1/8/01; NEPA scoping process not yet initiated.

AIRPORT

Project Name: White Pine County Airport ILS.

Project Description: Proposal by White Pine County to extend N/S runway northward in the direction of the existing transmission line corridor by as much as 6,000 feet to accommodate expanded commercial service. Other components of the proposal include development of BLM fire base and aircraft maintenance facilities. Preliminary cost estimates and funding requests have been accepted by the FAA Airport Capital Improvement Program (ACIP) for 2001 and 2002.

Location: White Pine County Airport (Yelland Field) located approximately 3 miles north of Ely.

Status: No formal applications or final commitments for funding have been made. BLM lease agreements will need to be negotiated by FAA, once approved.

Project Name: Eureka County Municipal Airport, Eureka, Nevada.

Project Description: Preliminary cost estimates and funding requests for construction of a crosswind runway have been documented in the FAA Airport Capital Improvement Program (ACIP) for 2005.

Location: Eureka Municipal Airport located approximately 6 miles north of Eureka, Nevada.

Status: This project has not been included in the estimated acres of disturbance (Table 4-1) as it is too speculative and no specifications for the proposal are available at this time.

RAILROAD

Project Name: Yucca Mountain Branch Rail Line Project.

Project Description: The U.S. Department of Energy is studying Yucca Mountain, Nevada, to determine its suitability as a place to build a geologic repository for the nation's commercial and defense-related spent nuclear fuel and high-level radioactive waste. If a repository were built at Yucca Mountain, shipments of spent nuclear fuel and high-level waste would arrive in Nevada by train and/or truck. One option for train shipments evaluated in the EIS is for the Department to build a branch rail line to the repository that would connect from an existing main rail line in Nevada. One of many potential rail corridors evaluated in the EIS, the Carlin potential rail corridor, would be in the Falcon-Gonder project area. This rail line would be constructed from an existing rail line at Beowawe and would roughly parallel State Highway 306 in Eureka County, heading southwest to Yucca Mountain. If constructed, the line would intersect Segment B of the Falcon to Gonder project near the town of Crescent Valley.

Location: Beowawe to Yucca Mountain, Nevada (portion within CISA includes approximately 82 miles to the southwest from the Beowawe terminus).

Status: In late 2001 or early 2002, the Secretary of Energy is scheduled to make the decision whether to recommend Yucca Mountain to the President as the repository site for highly radioactive materials. It is uncertain when plans for repository shipments will be finalized. If the Nuclear Regulatory Commission eventually issues licenses to construct and operate a repository, the earliest a repository would be ready for waste emplacement is 2010.

PROPOSED UTILITY CORRIDOR (RMP AMENDMENT)

SPPC currently has no plans to construct additional transmission lines or fiber optic lines in the Falcon to Gonder corridor. However, it is reasonable to assume that other utilities may wish to install long-distance transmission lines, fiber optic lines, and natural gas or oil pipelines in the same utility corridor next to the proposed project by 2033 to serve the growing western region. This cumulative impacts analysis examines the possibility that 3-4 transmission lines could be constructed in the utility corridor (including the proposed Falcon to Gonder project) if the BLM amends the related Resource Management Plans to designate a new utility corridor. However, this is an extremely conservative "worst-case type"

assumption made for purposes of this analysis. The actual use of this utility corridor for additional transmission lines in the future is uncertain and speculative.

ROAD CONSTRUCTION AND MAINTENANCE

While neither the Nevada Department of Transportation nor local county public works departments have plans to construct new major roads in the project area, these entities do plan on continued maintenance and upgrading of the existing roadway infrastructure. It is also reasonable to assume that smaller, private roads would be constructed within the project area to serve a growing region. These potential future projects would likely be constructed by private developers extending new local access roads to future development, or upgrading existing dirt roads to higher standards. Due to the speculative nature of such activities and the absence of actual physical plans, potential land disturbance from future local road construction and maintenance activities cannot be quantified at this time.

4.3 EVALUATION OF POTENTIAL CUMULATIVE IMPACTS

Environmental consequences of the proposed action (i.e., approval of the Falcon to Gonder project and associated BLM Resource Management Plan amendments) are analyzed in Chapters 3 and 5. The following provides an analysis of potentially significant cumulative impacts related to the proposed action when viewed in conjunction with other past, present, and reasonably foreseeable actions in the CISA. This analysis considers the anticipated contribution that the Falcon to Gonder project would have to cumulative impacts after the mitigation measures described in Chapter 3 are implemented.

4.3.1 GEOLOGY AND MINERALS

Consistent with the analysis in Chapter 3, the project would contribute cumulatively to grading and topographic alteration in the study area and region. Highways, roads, and railroads in the vicinity of the project also present significant topographic alteration because of the need to establish appropriate grades and radii of curvature. While the amount of grading and topographic alteration from the mines, quarries, roads, and railroads is not quantified, the general indicator of cumulative landscape alteration (33,620 acres), as shown in Table 4-1, suggests that together they present much greater topographic alteration than that associated with the project (270 acres in total).

The project would require minor grading at isolated localities, mostly at small sites for support tower pads and local dirt access roads located on steeper slopes in the hills and mountains. But none of the large cuts and fills typically associated with mining and transportation corridors would be needed for the transmission project nor are likely for other utilities in the proposed utility corridor (unless major roads were co-located in the corridor, which is not likely for the entire corridor). Future mines and new roads in the cumulative impact study region may be of substantial size in the new designated utility corridor and result in substantial changes in topography; however, their impact is speculative. Other transmission lines in the corridor would be expected to have similar effects on topography and disturbance to those of the project. In considering the existing amount of topographic alteration and the potential future topographic alteration, the project would represent a small amount of change in the topography and would not contribute substantially to cumulative topographic impacts and the cumulative impact is deemed less than significant.

Geologic hazards (e.g., earthquakes, landslides, and unstable slopes) are present throughout the region but are expressed locally. Cumulative development results in exposure of people and property to these hazards. The impact is notably associated with mines and transportation systems both for construction and long-term operation. Cumulative development in the proposed utility corridor would have geologic

hazards generally similar to those of the project. As additional power transmission and utility lines would be co-located with the Falcon to Gonder project, the impact would be similar. However, additional utility line development, roads, and rail lines would not result in additive hazards because of requirements for adequate spatial separation of the buried and above-ground facilities. Therefore, the cumulative impact would be less than significant. Other developments in the cumulative impact study area would represent a substantial exposure of property and people to geologic hazards. However, as the hazards are site-specific, the project would not have additive effects.

The preferred alternative (Pine Valley (a) route) would pass near but not directly conflict with a number of small mines and aggregate quarries that are scattered along the alignment. Like the proposed project, future projects in the 3-mile utility corridor could strategically locate facilities and/or work with mining companies to avoid conflicts with existing large scale mining operations and address impacts to active mining claim holders on a case-by-case basis. Similar measures could be taken to address potential conflicts with existing gas, oil and geothermal resource facilities and lease holders. Thus, cumulative impacts to geology and mineral resources are deemed less-than-significant.

RESIDUAL IMPACT

Mitigation measures discussed in Section 3.1, Geology and Minerals, would help reduce residual impacts to a less-than-significant level.

4.3.2 SOILS

Construction of the Falcon to Gonder project and designation of the new utility corridor through the RMP amendments could facilitate the construction of additional utility lines and infrastructure projects in the corridor. Cumulative impacts related to soil erosion and compaction would occur in disturbance areas shared by this and other projects. Cumulative impacts on soils would occur from the Falcon to Gonder project in conjunction with other actions in the study area and future projects that may locate in the utility corridor. Cumulative impacts would include:

- Increased soil erosion and soil compaction,
- Disturbances to downstream resources by erosion and sedimentation, and
- Decreased potential for revegetation/reclamation success.

These impacts would occur for other projects constructed within the proposed utility corridor and in the immediate vicinity. Additionally, other projects in the region represent dispersed sources of past, existing and future soil erosion, depending on local environmental conditions. Mining projects, especially old abandoned mines and roads, are subject to significant erosion. The impacts of the Falcon to Gonder project would be less than significant by implementing Mitigation Measures Soil-1 through Soil-4 and reclamation success criteria to be provided in the COM Plan, as applicable. Other projects within the proposed utility corridor or in other parts of the cumulative impact study area would have a similar or greater potential for soil erosion and compaction. It is expected, although not assured, that new projects would be substantially reduced sources of soil erosion because of current and future requirements for erosion control and site restoration enforced through federal, state, and local permits. Therefore, the cumulative impacts of the project and plan amendments on erosion are primarily the additive effects of minor increments to existing soil erosion problems in the cumulative impact study area. For this reason, the cumulative impacts of the Falcon to Gonder project and plan amendment would be considered less-than-significant. Additional mitigation is not required.

4.3.3 WATER RESOURCES

Construction of the Falcon to Gonder project and designation of the new utility corridor could facilitate the construction of additional utility lines and infrastructure projects in the corridor. Impacts on water resources similar to those described in Section 3.3 would generally be expected to occur for other projects within the corridor and in the immediate vicinity. These include:

- Potential spills and contaminant discharges during construction;
- Sediment discharges in watercourses from construction;
- Obstruction and alteration of watercourses;
- Increased runoff from soil compaction, possibly affecting flood flows;
- Construction activities affecting the flow of springs and wells; and
- Flood and flash flood hazards to structures.

Mining projects in the immediate vicinity would have substantially greater potential impacts on surface waters and groundwater resources and have substantial potential for discharge of contaminants into water bodies. Cumulative impacts related to contaminant and sediment discharges, soil compaction, and associated runoff effects would occur in disturbance areas shared by this and other projects. Highways, roads, and railroads in the vicinity of the project also present significant environmental disturbance and potential for contaminant discharge because of grading and regular deposition of vehicle contaminants (e.g., fuel, fuel additives, oil, solvents, metals, rubber and others) on road surfaces, as well as occasional accidental spills of hazardous materials. The general indicator of cumulative landscape alteration, as shown in Table 4-1, suggests that together these developments present much greater potential for discharges into water courses than that associated with the project. It is assumed that new project construction would be required to meet federal, state, and local permit requirements, as described for the Falcon to Gonder project, including many of the mitigation measures identified in Section 3.3. Therefore, the cumulative contribution of the project to impacts in those categories would be less-than-significant.

The potential exists for other projects in the cumulative impact study area to affect groundwater resources, including the flow of springs and wells. The impact would be highly variably depending on the type and configuration of the project and its relation to local groundwater resources. While a potential for adverse impact is present, the effect is speculative and would have to be evaluated for each project. In general, mining projects have the most substantial potential to significantly affect groundwater resources both through direct use of water and interception of the groundwater table. Land development and agriculture also may draw heavily on local water resources. In contrast, highways, transmission and utility lines, roads, and railroads likely would have little effect on use of groundwater resources except briefly during construction, as described in Section 3.3. Because mitigation is included in the Falcon to Gonder project, as assumed for other new projects, the impact to groundwater resources is considered to be less-than-significant.

Other projects also may contribute to hazards to people and facilities from construction in flood and flash-flood hazard areas. The hazard is local in nature and would only affect individual projects or parts of them; therefore, no additive effects would be expected. In addition, it is assumed that new facility construction would be designed to have an acceptable level of risk against flooding and flash flooding. For these reasons, the cumulative impact of the Falcon to Gonder project on flooding and flash flood hazards is deemed to be less-than-significant.

4.3.4 VEGETATION

Construction of the Falcon to Gonder project and designation of the new utility corridor through the RMP amendments could facilitate the construction of additional utility lines and infrastructure projects in the corridor. Cumulative impacts on vegetation resources would occur from the Falcon to Gonder project in conjunction with other actions in the study area and future projects that may locate in the Falcon to Gonder utility corridor. Cumulative impacts would include:

- Reduction in reclamation success.
- Increased disturbance (e.g., cheatgrass invasion) of plant communities.
- Indirect effects from the increase in human activity in the area.

Concentrating multiple utility lines and other linear infrastructure projects within a designated corridor could cause increased cheatgrass invasion (see 4.3.5, Invasive, Nonnative Species, below), indirect effects of increased human activity, and reduction in reclamation success in the corridor. Regardless, it is preferable to the disturbance that would be associated with the proliferation of utility lines in largely undisturbed areas. However, all RMPs and the FLPMA permit ROWs outside of utility corridors. Cumulative impacts to plant communities would be considered adverse, but not significant. After construction and revegetation, the preferred alternative would account for less than 1% of the total cumulative disturbed area (see Table 4-1). The project's contribution to potentially significant cumulative vegetation impacts would be less-than-significant after mitigation, providing that other projects apply similar mitigation and reclamation measures to those proposed in this EIS and do not contribute substantially to losses of what are currently largely undisturbed and regionally common and widespread plant communities.

4.3.5 INVASIVE NONNATIVE SPECIES

Cumulative impacts related to invasive native species, including noxious weeds and cheatgrass, would occur from the Falcon to Gonder project in conjunction with other actions in the study area and future projects that may locate in the Falcon to Gonder utility corridor. Cumulative impacts would include introduction and dispersal of invasive weeds during construction, operations, and maintenance of existing and future projects.

Concentrating multiple utility lines and other linear infrastructure projects within a designated corridor could cause increased introduction and dispersal of invasive weeds in and adjacent to the corridor. Cumulative impacts related to invasive weeds would be considered adverse, but not significant. The impacts would be reduced by implementing mitigation measures similar to those identified in Sections 3.4, 3.5, and Appendix E of this EIS.

4.3.6 WILDLIFE AND WILDLIFE HABITAT

Cumulative impacts on wildlife and wildlife habitat would occur from the Falcon to Gonder project in conjunction with other actions in the study area and future projects that may locate in the Falcon to Gonder utility corridor. Cumulative impacts would include:

- Temporary removal of habitat and displacement of wildlife species.
- Indirect effects from the increase in human activity in the area.
- Habitat fragmentation.

While concentrating multiple utility lines and other linear infrastructure projects within a designated corridor could cause habitat fragmentation, it is preferable to cluster habitat disturbance as opposed to the proliferation of utility lines and other projects randomly across public lands. Similarly, it is preferable to locate the new utility corridor in areas with existing utility lines, habitat disturbance, paved roads, and human activity rather than in areas that are more remote. Additionally, the project would account for less than 1% of the total disturbed area in the cumulative impact study area. It may be assumed that future projects in the utility corridor would be subject to equivalent mitigation requirements as those of the Falcon to Gonder project. Thus, cumulative impacts associated with the Falcon to Gonder project and designated utility corridor would be considered less-than-significant after mitigation.

In evaluating future projects in the corridor, BLM should encourage project proponents to locate new projects as close as safely possible to existing rights-of-way to minimize wildlife impacts. It may also be beneficial to narrow the utility corridor in sensitive areas such as those frequented by shorebirds and waterfowl, mule deer and pronghorn seasonal habitats, and migratory corridors.

4.3.7 SPECIAL-STATUS SPECIES

Cumulative impacts on special status species would occur from the Falcon to Gonder project in conjunction with other actions in the study area and future projects that may locate in the Falcon to Gonder utility corridor. Special-status species that could be subject to cumulative impacts include:

- Pennell draba (*Draba pannellii*)
- Western sage grouse (*Centrocercus urophasianus*)
- Ferruginous hawk (*Buteo regalis*)
- Western burrowing owl (*Athene cunicularis hypugea*)
- Pygmy rabbit (*Brachylagus idahoensis*)

The types of cumulative impacts associated with special-status species would be similar to those described above for wildlife and wildlife habitat. However, because of their rarity, similar effects can have more significant consequences for special-status species and their habitats. Therefore, it is even more critical to locate future rights-of-way such that they avoid sensitive species and their habitats and/or as close together as possible to minimize impacts.

❑ Cumulative Impact Species – 1: Possible Disturbance of Special-Status Plant

Construction of the Falcon to Gonder project and designation of the new utility corridor through the RMP amendments could facilitate the construction of additional utility lines and infrastructure projects in the corridor. Future projects in the corridor could potentially impact the Pennell draba plant population that was identified at the Hercules Gap during biological surveys. This impact would be significant but could be mitigated to less-than-significant by the following measure.

❑ Cumulative Mitigation Species – 1

BLM should require future projects in the utility corridor to implement Mitigation Measure Special-Status Species–1 described previously in Section 3.7.

❑ Cumulative Impact Species – 2: Habitat Fragmentation and Displacement of Special-Status Wildlife

Construction of the Falcon to Gonder project and designation of the new utility corridor through the RMP amendments could facilitate the construction of additional utility lines and infrastructure projects in the corridor, which could increase human activity in the area, as well as

contribute to habitat fragmentation and displacement of special-status wildlife. Cumulative impacts on special-status wildlife could be significant for the proposed route and utility corridor. The following mitigation would reduce these impacts to less-than significant.

❑ *Cumulative Mitigation Species – 2*

If practical, coordinate timing of construction to coincide with other projects (such as the fiber optic cable project along US Highway 50) to minimize the length of temporary habitat disturbance and human activity in the corridor. BLM could also require that future projects in the corridor comply with seasonal timing for species, such as sage grouse and ferruginous hawks.

In evaluating future projects in the corridor, BLM should encourage project proponents to locate new projects as close as safely possible to existing rights-of-way to minimize special-status wildlife impacts. It may also be beneficial to narrow the utility corridor in areas that contain sensitive habitats for sage grouse, ferruginous hawk, western burrowing owl, and pygmy rabbit.

RESIDUAL IMPACT

As with wildlife and wildlife habitat, cumulative impacts would be less-than-significant if these mitigation measures were implemented.

4.3.8 VISUAL RESOURCES

The transmission line as well as other linear projects which may be authorized within a designated utility corridor would substantially alter the visual environment by adding to the visual appearance of other developments, such as existing transmission lines, mines, and roads. This cumulative effect would create a significant and irreversible change to the visual environment.

The Falcon to Gonder project, when viewed in conjunction with other past and present projects of similar scale and magnitude, may also have the potential to exceed the interim and established VRM Class objectives within the cumulative impacts study area (i.e., the 3-mile wide corridor viewshed as seen from 29 key observation points selected for the project). This is especially true of areas classified as either Class II or Class III and in areas with existing transmission line. The management objectives in Class II areas require the retention of the existing natural landscape, and activities should not attract attention of the casual viewer. In Class III areas, the objective is to partially retain the existing natural landscape. Activities can attract attention but should not dominate the landscape.

The designation of a new utility corridor could facilitate the concentration of additional transmission lines or other major linear projects in this area, potentially creating a visual contrast that would exceed these objectives. Although designation of utility corridors and co-locating utility lines are planning techniques employed by the BLM to mitigate cumulative impacts and avoid the proliferation of transmission lines across public lands, the visual contrast created by this and other past, present and future actions may potentially exceed the applicable management objectives. The proposed action's contribution to these cumulative adverse visual impacts would be considerable.

The project as proposed (prior to applying mitigation measures) would result in significant impacts to visual resources along Segments B, D, E, and H, due to inconsistencies with BLM's established visual resource management objectives. Therefore, it is reasonable to assume that the proposed action, in conjunction with past, present, and reasonably foreseeable future actions, would have similar effects on established VRM Classes and result in additive significant cumulative impacts.

❑ ***Cumulative Impact Visual-1***

Construction and operation of the Falcon to Gonder transmission line and designation of a contiguous utility corridor in related BLM Resource Management Plans may facilitate the construction of other linear projects within the corridor. This would create a visual contrast that would cumulatively exceed the interim and established VRM Class objectives within the utility corridor. The preferred alternative would also contribute to the widespread and growing regional disturbance of the visual quality of the landscape through highly visible developments, especially other transmission lines, roads, and mines. Many of the KOPs discussed above would be affected on a region-wide basis. This would be a significant cumulative impact. However, it should be noted that there is no certainty that other projects will be built in the corridor, and this analysis is speculative.

❑ ***Cumulative Mitigation Visual-1***

The BLM's Visual Resource Contrast Rating system should be utilized to analyze potential visual impacts associated with future projects proposed within the corridor for consistency with the established VRM Class objectives. Mitigation measures should be developed for each future project to minimize the visual contrast to a level that is consistent with the established management classes.

RESIDUAL IMPACT

The mitigation measures listed above and in Section 3.9 would reduce, but not entirely eliminate, the project's contribution to cumulative visual impacts. The proposed action's contribution to potentially significant cumulative visual impacts could remain considerable after mitigation, mainly due to the new BLM utility corridor designation.

4.3.9 PUBLIC HEALTH AND SAFETY

The proposed transmission line combined with potential future facilities in the designated utility corridor would additively increase EMF, hazardous materials, and fire hazards in the study corridor. People living and working near the corridor, as well as those people driving on nearby roads and working in mines, could potentially be impacted. However, the facility designs, clearance requirements, and distance separations for adjacent transmission lines would reduce these potential cumulative impacts to a less-than-significant level. Generally, utilities place parallel transmission lines and other utilities an adequate distance apart so that if one is damaged or disabled, the others are not automatically affected. The use, storage, and disposal of hazardous materials for this and other projects in the study area are subject to federal, state, and local hazardous materials health and safety laws.

In addition, mining operations and roads create their own hazards, in the form of mining accidents, exposure to hazardous substances at mining sites, and roadway accidents. The Falcon to Gonder project would not likely compound these existing hazards or future hazards when new or expanded mines and roads are constructed. While wildfires are common in the region, this project is not anticipated to contribute to a significant cumulative fire hazard, as SPPC would implement fire prevention and response measures such as those contained in Appendix F. This and other projects on public lands would also be subject to federally enforced fire laws and regulations.

From a regional perspective, the cumulative effects would be similar to those described above, but would have a wider area of distribution. The project's cumulative impact would be small in comparison to the hazards that exist in the wider region due to its remote location. Some of the projects considered in this cumulative analysis are located in more populated areas, potentially exposing greater hazards for people and property. The Falcon to Gonder project and the proposed utility corridor generally pass through

sparsely settled areas and, therefore, do not add substantial new or additional hazards to people and property. Therefore, the cumulative impact of the proposed action is considered less-than-significant.

4.3.10 CULTURAL RESOURCES

The proposed action would contribute cumulatively to disturbance of cultural resources in the study area and region. Subsurface disturbance has the greatest potential to directly affect NRHP-eligible cultural resources sites, especially buried prehistoric resources. The general indicator of cumulative disturbance (33,620 acres), as shown in Table 4-1, suggests that together, these past, present, and future projects present much greater disturbance of land than that associated with construction of the preferred alternative (2,172 acres, which is a worst-case estimate as explained in Chapter 2). Future projects in the cumulative impact study area may be of substantial size in the newly designated utility corridor and result in substantial disturbance of soils; however, their impact is speculative. In consideration of the existing amount of subsurface disturbance and the potential for future disturbances, the project itself would represent a small amount of change and would not contribute substantially to cumulative impacts.

However, given the numerous NRHP-eligible cultural resources along the preferred alternative route, the designation of a utility corridor in this location has the potential to cause significant cumulative impacts to known, as well as unknown, cultural resources. The impacts would be similar to the proposed project, and would include: (1) direct surface or subsurface disturbance of cultural resources incurred during construction, maintenance, or operation of the Falcon to Gonder project and other projects; (2) indirect effects such as increased traffic and accessibility to the sites; and (3) indirect visual effects to significant historic sites and TCPs. The designation of this corridor could facilitate the construction of other major linear projects in this area, creating a pattern of continued disturbance to cultural resources¹. This is considered a significant cumulative impact.

Mitigation measures to avoid or substantially reduce cumulative effects should include: (1) data recovery on a sample of sites, (2) protection of sites during construction, and (3) long-term monitoring.

Cumulative Impact Cultural - 1

Construction of the Falcon to Gonder project and designation of a contiguous BLM utility corridor may lead to the concentration of other linear projects within the corridor.

Improvements to local access roads may also lead to increased disturbances to archaeological sites. Thus, the Falcon to Gonder project could contribute to significant cumulative impacts on cultural resources in the study area.

Cumulative Mitigation Cultural – 1

Data Recovery: A sample of sites susceptible to indirect or cumulative effects shall be subject to data recovery efforts. These sites shall be selected from those NRHP-eligible sites along the selected route that would not otherwise be treated for direct impacts. Not all sites shall be included in a sample, but the sites selected will have potential to address the research questions posed for the project and a variety of issues. Sites eligible for the NRHP subject to cumulative or other indirect impacts not included in the sample shall receive no additional protection or consideration after completion of construction, although during construction some protective fencing and direction to construction crews should lessen direct impacts. Sites included in the sample to receive data recovery efforts may be distributed among the three BLM Field Offices in the project area. A sample of 20-25% of significant sites along the route (plus a 10% sample of significant sites along access roads) is considered to constitute an adequate sample, the total to

¹ Since Segments I and J are currently within a designated utility corridor, selection of these segments would not contribute to the proliferation of additional utility corridors.

include those directly affected sites. The prehistoric site types used to summarize inventory results will serve as a framework for selection of the indirect/cumulative impact site sample for prehistoric sites, while function will be the basis for selection of the historic sites.

Historic and prehistoric sites will be represented in the treatment sample in proportion to their representation in the overall site population. Since effects to these sites are not confined to particular areas, (i.e., the portions of sites most susceptible to collection or vehicular disturbance is not entirely predictable), excavation may be undertaken in any area of the sites involved, where the route is adjacent to public lands.

Protection of Sites During Construction: As warranted, known significant archaeological sites along the selected route, which are not otherwise receiving mitigation through data recovery, will be protected from disturbance during construction through fencing and monitoring as discussed in the COM Plan and the HPTP. Some locations, however, may be too difficult to access (i.e., steep, mountainous areas); it may not be necessary to fence or monitor all sensitive locations.

Signage: Cultural resource protection signs (e.g., labels pasted to Carsonite posts) will be posted on major roads near the project area. These would not be placed at or near sites, so as not to draw people to the sites.

Long-Term Monitoring: SPPC shall initiate a long-term monitoring program which will accomplish two goals: (1) to provide monitoring of cumulative impacts for this project, and (2) to provide data which can be used in the future to evaluate the impacts that increased accessibility may have on the inadvertent and deliberate disturbance of archaeological data on similar projects.

Five to ten archaeological sites will be selected for monitoring. These will be sites not otherwise subjected to data recovery that are near the centerline of the project, and not in any areas slated for direct disturbance. These sites must exhibit relatively stable surfaces (i.e., they are not located in either erosional or depositional settings). The sites will be distributed on public lands (to avoid potential conflicts with private landowners) among the three BLM Field Offices within the project area. At 6-month intervals for a term of 5 years, these sites will be revisited and boundaries and debitage densities or debris scatters will be compared to those noted in previous recordings. This will control for natural factors which may affect the sites as a whole since illegal artifact collection by site visitors is usually focused on recognizable or attractive formed tools such as projectile points, debitage, and historic bottles rather than entire scatters. Diagnostic or other formed tools and historic bottles, coins, or antique collectibles will be remapped to determine whether unauthorized collection has taken place. This mapping will use sub-meter accuracy GPS recording. The locations will be compared to that from previous recordings. Letter reports will be submitted to the appropriate BLM Field Offices at the time of each monitoring event.

At the end of the 5-year monitoring program, a report describing the monitoring program that evaluates the degree of unauthorized collection will be prepared. The report will compare more and less accessible areas, and will be published in a professional journal available to other researchers. Suggested publications are the *Journal of Field Archaeology*, *Lithic Technology*, *Journal of California and Great Basin Anthropology*, or *CRM* magazine.

RESIDUAL IMPACT

Implementation of Cumulative Cultural Mitigation–1, including data recovery on a sample of 20-25% of all significant sites (plus a 10% sample of significant sites along access roads), protection of sites during construction, and long-term monitoring would reduce residual impacts to relatively minor levels. The HPTP describing mitigation of direct, indirect, and cumulative impacts will be approved by the BLM, after consulting with the Nevada SHPO and as appropriate, with Native Americans. As a result, the HPTP will be used to apply the most appropriate mitigation measures and to reduce residual impacts to the greatest extent possible.

4.3.11 NATIVE AMERICAN CONCERNS

The Falcon to Gonder transmission line when viewed in conjunction with other utilities that may be authorized in the utility corridor may cumulatively impact ethnobiotic resources of concern to Native Americans. Specifically, direct disturbance to medicinal plants or restricted access to these plant locations could be more widespread in the corridor. To reduce this potential impact, subsequent environmental review of future projects in the corridor should implement Mitigation Measure Native Concern–1, requiring oral interviews with tribal traditionalists to identify potential areas of concern.

From a regional perspective, the Falcon to Gonder project would be viewed as adding to the destruction of aboriginal territory by the Native Americans (and others). However, co-location of utilities would reduce the potential for more widespread disruption of pristine or minimally altered portions of this territory. In addition, the project's level of disturbance would represent a small amount of change in the regional landscape, as shown in Table 4-1. For these reasons, the cumulative impact on Native American concerns from a regional perspective is deemed less-than-significant.

4.3.12 LAND USE AND ACCESS

The Falcon to Gonder transmission line, when considered with other future projects that may be authorized in the utility corridor, could have a cumulative effect on land use by permanently removing land from certain uses, such as residential development, farming, etc. in the immediate rights-of-way. It would commit land uses in the utility corridor to ones that are compatible with utilities. However, given the sparsely developed nature of the area and the extent of open space within the proposed 3-mile wide utility corridor that would allow future facilities to be located to avoid land use conflicts (e.g., with large scale mining operations or airport expansions), cumulative impacts to land use and access would be less than significant.

On a regional basis, cumulative acres of disturbance (33,620 acres), as shown in Table 4-1, suggests that disturbance to land, and therefore disruption of land uses, would be much greater than that associated with the project (270 acres), which is less than 1% of the total change. As such, the project would represent a small amount of change in the regional land use and would not contribute substantially to cumulative land use impacts. For these reasons, the cumulative impact on land use from a regional perspective is deemed less-than-significant.

4.3.13 RECREATION/WILDERNESS

No impacts to recreation or wilderness were identified in Chapter 3. However, the Falcon to Gonder transmission line, when viewed in conjunction with other utilities that may be placed in the utility corridor, could cumulatively diminish the recreational experience, especially for dispersed recreational areas. Future utilities in the corridor would reduce the appearance of undeveloped open space and

preclude these areas from possible future consideration as wilderness. The utility corridor also may preclude some forms of dispersed recreational use. However, neither the proposed transmission line nor the utility corridor would traverse the Humboldt-Toiyabe National Forest, the Ruby Lake National Wildlife Refuge, and other prime areas. In addition, the utility corridor would not traverse any wilderness or wilderness study areas. For these reasons, the Falcon to Gonder project would likely have a less-than-significant cumulative effect on recreation/wilderness.

From a regional perspective, the Falcon to Gonder project would have additive effects on recreation, especially in the loss of undeveloped open space, and may restrict some regional recreation opportunities. As shown in Table 4-1, however, the project would represent a small amount of change in the regional landscape and would not contribute substantially to cumulative recreational impacts. From a beneficial standpoint, the proposed action could help restrict other regional utility developments to the designated utility corridor, potentially safeguarding prized wilderness and wilderness study areas. For these reasons, the cumulative impact on recreation/wilderness from a regional perspective is deemed less-than-significant. No residual impacts are anticipated.

4.3.14 ENVIRONMENTAL JUSTICE

No impacts related to environmental justice were identified in Section 3.18. As such, the Falcon to Gonder project would have no cumulative effects on low income and minority communities.

4.3.15 SOCIAL AND ECONOMIC VALUES

The Falcon to Gonder transmission line and additional utilities in the utility corridor would generate additional tax revenues for local governmental agencies, as well as temporarily increase levels of local employment. These are considered beneficial cumulative impacts. Additional utilities within the corridor could adversely affect land values for some types of adjacent uses (e.g., residential use). Given separation requirements, the speculative nature of these future projects, the sparsely developed nature of the corridor, and the variable state of land market value, these socioeconomic effects are considered less-than-significant and speculative. From a regional perspective, the proposed action could contribute to expanding development in north Nevada and eastern California, provide further economic growth for this region, and provide additional tax revenue for the four-county region.

4.3.16 NOISE

The Falcon to Gonder transmission line and additional utilities in the utility corridor would add to the ambient noise levels, especially in the form of a low-frequency hum of transmission lines during wet or humid weather. Given the sparsely developed nature of the corridor and the few sensitive receptors in the area, the cumulative effects of noise are considered less-than-significant. Transmission line noise decreases quickly with distance away from the line.

From a regional perspective, other uses such as highways, mining, and other developed land uses produce substantially greater noise levels than the Falcon to Gonder project. As such, there would be very little in the form of additive noise levels resulting from the project.

4.3.17 AIR QUALITY

The Falcon to Gonder transmission line and additional utilities in the utility corridor would add to exhaust emissions and particulate during construction periods. As new construction would be staggered

over time, dust and other emissions would be dispersed in time and location. The study area is sparsely developed, especially along the corridor, and there are few sensitive receptors in the area. With mitigation to control dust and other emissions, the Falcon to Gonder project would contribute little to local air quality pollution, especially in relation to large emission sources such as mines and vehicle traffic on highways. Therefore, the cumulative effects on air quality is considered less-than-significant.

From a regional perspective, other uses such as highways, mining, and other developed land uses produce substantial emissions of particulate, NO_x, CO, and other air pollutants. Long-term operation of the Falcon to Gonder project and other transmission projects would generate almost no direct emissions of air pollutants. Particulate generation from disturbed soils may continue until construction areas are revegetated. For these reasons, there would be very little in the form of additive air quality effects resulting from the proposed action. Therefore, the cumulative impact is deemed to be less-than-significant.

4.4 SHORT-TERM USE OF THE ENVIRONMENT VS. LONG-TERM PRODUCTIVITY

This section considers the effects of the proposed action which narrow the range of beneficial uses of the environment. The Falcon to Gonder project and the associated RMP amendment to create a utility corridor would result in a long-term commitment of resources along the length of the corridor and at the substations. Because most of the project would be located in sparsely settled rural areas, the transmission project would preclude, but is not expected to significantly affect, existing residential, commercial, and industrial land uses in the vicinity of the transmission line. Stock grazing could continue with minor interruption or impact. Designation of the utility corridor also would preclude future consideration of the corridor area for wilderness, should that occur. Some forms of dispersed recreation may be more limited because of the project and other utilities constructed in the corridor.

Construction of the project, as well as other future projects in the utility corridor, would result in disturbance of the vegetation cover, soil, and wildlife habitat. Most of the area has vegetation cover and habitat common to the region. The proposed action would result in habitat fragmentation and displacement of wildlife, resulting in reduced quality of habitat and related productivity of wildlife populations occupying/using that habitat. Of special concern would be the loss of habitat for special status species including Pennell draba (*Draba pannellii*), Western sage grouse (*Centrocercus urophasianus*), ferruginous hawk (*Buteo regalis*), Western burrowing owl (*Athene cunicularis hypugea*), and pygmy rabbit (*Brachylagus idahoensis*).

4.5 IRREVERSIBLE / IRRETRIEVABLE COMMITMENT OF RESOURCES

This section considers the effects of the project which commit resources and uses of the environment that cannot be recovered if the project were constructed. The Falcon to Gonder project and the associated RMP amendment to create a utility corridor would result in construction actions that would permanently alter soil and remove vegetative cover. The Falcon to Gonder transmission line would cause long-term disturbance of approximately 270 acres of land. However, after the useful life of the facility, some of that soil and its vegetation cover would be restored through mitigation identified in this report. The amount of time required to achieve full vegetation recovery would take several years, depending on weather and other conditions, and full recovery is not assured. Wildlife dependent on the affected vegetative habitat would be displaced and possibly experience reduced populations. Similarly, after the useful life of the facility, recovery of those affected wildlife populations, including some sensitive species of plants and animals (see Sections 3.6, 3.7, and 4.1), would take place over several years and full recovery is not assured.

Considering the quantity and quality of NRHP-eligible cultural resources in the project area, both the project and utility corridor have the potential to create irretrievable losses of significant cultural resources if the mitigation measures identified in Section 3.16 are not implemented. Damage or destruction of these resources would be a significant, irreversible loss to our national heritage and scientific understanding.

Construction of the project would require the irretrievable commitment of natural resources from direct consumption of fossil fuels, construction materials, the manufacture of new equipment that largely cannot be recycled at the end of the project's useful lifetime, and energy required for the production of materials.

During the project's operational life, the transmission line would accommodate the transmission of additional electrical power generated from renewable (hydroelectric and geothermal power) and non-renewable resources (natural gas, oil and coal). The use of non-renewable resources at power generation stations would be substantial, but cannot be quantified with available information (see below). This generation likely would occur in areas outside the project area in locations closer to large population centers. The generation of power is evaluated under separate regulatory systems; therefore, the impact is indirect and secondary to the project at hand.

The project is solely a transmission line with attendant facilities and does not include any power generation facilities. Thus, as proposed, there is not direct connection of the project to planned expansion of power plants by SPPC. Moreover, as noted in the Introduction, if Nevada Senate Bill 438 were passed, under energy restructuring SPPC could no longer continue to generate power in Nevada. SPPC would be required to sell its existing Nevada power plants. Thus, there is no impetus for nor direct linkage of the Falcon to Gonder Transmission Project to any proposed new power generation facilities operated by SPPC or Nevada Power in Nevada.

The generation of new power supplies is seen by the Department of Energy as a necessity to meet the growing demand of the increasing population in the western USA. Use of electric energy is projected to increase substantially over the next couple decades in Nevada, in portions of California served by SPPC, and in regions supplied by power through the western grid. The latter includes the service area in Oregon of Portland General Electric, for which SPPC is seeking approval to acquire under separate action from this project. Electric power is generated in diverse forms (from hydro power, fossil fuels, nuclear, geothermal, wind, solar, etc.) at widespread locations through the western US and is directed into the vast interconnected transmission system throughout the western states, and connecting to Canada and Mexico. The project would be a part of that transmission grid. The project itself would not directly result in the construction of new power plants. Given the general status of available supply and the growing demand (particularly during peak demand periods), the construction of new power generating plants, particularly gas-fired plants, seems a likely eventuality. Some of these may be plants constructed in Nevada by other power providers, or they may be constructed in out of state locations that would be the source of power directed to the Falcon to Gonder transmission project. In that respect, the project would accommodate some of the new power generation. Given the widely flung possibilities for interstate power generation and transmission, it would be substantially speculative to conclude that the project would be a direct or indirect catalyst for new power plant construction. In any event, those possible power generation projects have "independent utility," which means that they would require separate approvals from a wide range of federal and state agencies. Those regulatory approvals necessarily would consider the environmental effects of the construction and operation of the plants. It is beyond the scope of this EIS to address all those possibilities and to demonstrate what, if any, connection they might have to the project.

An exception to the preceding conclusion, geothermal energy production development, warrants brief discussion. The project passes through an area with known geothermal energy resources that have been developed in scattered locations of the study area (see Chapter 3.1). The proximity of the transmission line to geothermal areas could increase the potential that those resources might be developed in the future, especially in areas with convenient proximity to the transmission line if it were constructed. The cost to develop transmission facilities is sometimes the determining factor for the economic viability of geothermal energy development. The same may be equally true for wind and solar energy, or fossil-fuel plants, but unlike geothermal resources, the study area offers no particular advantages compared to other areas of the state for their development in relation to the transmission line. Nonetheless, while increased geothermal development remains a possibility, it is entirely speculation regarding whether the transmission project would be a catalyst for cumulative new geothermal energy development in the study area or elsewhere.

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